Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

OBSERVATIONS MADE IN THE CENTRAL PHILIPPINES.

BY J. B. STEERE.

THE islands of Panay, Guimaras, Cebu and Bojol may well be grouped together and called the Central Philippines. They are geographically connected; their people are of allied races and language, and, as we found, they are closely allied zoologically. With Mindanao on the south, Palawan on the west, Masbate and Mindoro on the north, and Leyte and Samar on the east, they are separated from all these by broad straits, while the channels dividing them among themselves are at their narrowest points nowhere more than five or six miles of continuous sea, and this usually shallow and apparently rapidly changing hues, so that the land areas must have been very different in size and form at a very recent period.

We arrived at the end of December, 1887, at Ilo Ilo, the capital of Panay, and the principal trade centre of the surrounding islands. Soon after we moved over to a pleasant native house on the island of Guimaras opposite. The place was on the beach, at the foot of some steep cliffs of coral, a little brook came tumbling down at one side, while a fine grove of cocoa palms shaded the house. The woods were near, and beautiful sun birds and Dicæums were flying about the palm houses, while several of the most beautiful species of the famed Philippine tree shells were found in abundance on the barn door and other outhouses near by. We were near enough the city to get a supply of fresh meat and bread every morning, and it was the nearest a naturalist's paradise we had yet found. The birds as they came in, though of genera we had already become familiar with in the west and south, were most of them of different species, showing that we had reached a new and distinct area.

The west side of the island is made up of steep, rugged cliffs of limestone, which rise up from two to three hundred feet above the sea. The rock has weathered into crevices and holes, leaving sharp points standing up, which makes transit very difficult. Inland this rock is broken up by narrow, steep valleys, through which flow the little streams from the centre of the island. The cliffs are full of caves, which seem in most cases to be water courses cut through the rock. We had heard of nests of the edible swallow (swift) in the island, and finally found a wrinkled old Indian who made a living by gathering the nests and selling to the Chinese at Ilo Ilo. The nests are not found, as might be supposed, in those caves opening near the sea, but in those far inland, where the cavity is covered with forest. We went to the nest-gatherer's hut, two or three miles back from the sea, and telling him our object, he provided himself with a torch of native gum (dammar) and another made of the ribs of cocoa palm leaves, and we set out. After half an hour's rapid tramping through the steep, rocky valleys, we came to a low ledge of rock, eight or ten feet high, covered with vines and bushes, and at the foot of this a black hole three or four feet square, leading down into the earth. The opening was just large enough to crawl through, but our guide lighted his torches, and getting down on hands and knees crawled in, and we followed, down a steep, narrow, rocky passage, the channel of a stream in the rainy season. It widened and grew higher as we went down, but was still nothing more than a rift made in the rocks, perhaps by earthquake, and widened by water wear. The rocks were muddy and slippery, and we followed our barefooted guide with difficulty. Still on we went, until all trace of light except from our torches was gone, and it seemed anything but a fitting place for birds' nests. Still we went on, until after we were perhaps a hundred feet below the surface, and several hundred from the mouth of the cave, we began to hear the weak, faint twittering of the little birds as they flew about over our heads, and finally the Indian raised his torch, and we could see in the roof of the cave shallow hollows in the rock, and in these, and partly supported by their sides, the little white, cup-like nests, which the guide began tearing out with his fingers, and stuffing into a pouch at his belt. The birds fluttered about almost in our faces, but he kept on until he had gathered all in sight. None of them had eggs in them, as he had visited the place but two or three weeks before. The nests were pure white in color, made of little fibres interwoven with each other, and were still soft and damp. How the birds had ever found this place so far from the light, with a dry face of rock, and with suitable digression in it was a wonder, and how they could do this work of nest building in such utter darkness. Coming to the surface we set out again, and after an hour's tramp came to the second cave. This time as we were making our way down a steep, timbered valley, the path all at once dropped out before us, and we were at the mouth of a dark well, leading down almost perpendicularly for twenty or thirty feet at first, when the descent became more gradual. By clinging to the projecting rocks we clambered down, and soon found ourselves in a passage twenty feet high and as many broad. Great masses of rock had fallen from the roof, which made our progress slow. Curious stalactite growths, taking the form of flat plates with saw-tooth edges, were hanging from the roof. After making our way to a still greater depth and distance than before, we again heard the faint noise of the birds, not loud enough to be heard except in such perfect quiet as we were in. It seemed more like the sounds spirits might make than the notes of anything earthly. Soon after we came to a part of the cave where the roof was some eight or ten feet high, and worn into curious and very regular pits, five or six inches deep and as many wide at the mouth, and as smooth and round as if made artificially. In these the birds were building their nests, attaching them to the walls of the pits. Again, in spite of the weak protests of the owners, the nests were torn out and appropriated by our guide.

As we made our way out we passed a stalactitic column a foot in diameter, which had connected the roof and floor of the cave, but had been broken across by earthquake, and the ends separated by half an inch. The thought of being caught away in there in utter darkness by an earthquake, with the rocks grinding and shutting in upon us, was anything but pleasant. Near the mouth of the cave, just where we could begin to perceive a ray of light from the surface, were several nests of cruder, rougher make, being much larger and made chiefly of grass and lichens stuck into the face of the rocks by large masses of the edible gum. The birds are, without doubt, of the same species. The guide said they were sentinels to alarm those within, and that their nests were always built in that way. The birds are quite abundant in the island, and there are probably many caves which the old man has not yet found. He is said to be the only one who dares enter them, others being deterred by stories of snakes, which are not all stories, for we passed, near the mouth of the second cave, the cast-skin of a snake eight or ten feet in length. There are also stories of a curious little black, hairy people, the Kama Kama, which are invisible at most times, and which inhabit these caves and live on the snails with which the island abounds. The guide pointed out great heaps of empty shells, far in the caves, as proofs of the existence of the Kama Kama, but they looked like shells which had been floated in by high water.

The edible nest (swift) according to the guide, whose account was proved to be correct by our observations as far as they went, nests the year round, lays two small, white eggs, is about a month completing its nest, lays the eggs on the bird edible material of the nest, nests time after time in the same nest, adding to it each time. The young build beside the nest in which they were born, frequently attaching their nest to that of the parents.

The only forest remaining in Guimaras was in the rough gorges and upon the rocky cliffs near the sea, the upper level of the interior of the island being sandy, and much of it in cultivation to sweet potatoes and Indian corn, and in the lower places to rice. The hills of Panay, all about Ilo Ilo, and as far up the mountains as we could see, showed no virgin forest, but only grassy slopes and bushy ravines, a poor outlook for our work. Whether the same conditions have worked like results elsewhere or not, there can be no doubt that the Indian method of cultivation has produced these grassy plains from an anciently heavily timbered country. They cultivate by cutting down the timber and burning it during the dry season, and then planting on the burned and blackened ground. One or two crops are raised before the wild growth gets too strong for their large knives, their only implement of cultivation, and then the timber grows again from the roots and sprouts left in the ground, and the cultivator cuts off another piece of forest. After a few years, if the population is thick enough to demand it, the first piece, now grown up to brushwood twelve or fifteen feet high, is again cut and burned and planted, and so on over and over again, the tree growth becoming weaker each time, until the coarse grass (cogon) gets in, and with it the annual fires, and then there is an end to Indian cultivation, and where were once tall forests, grassy plains take their place. This process can be seen on any island of the Philippines in all its stages. In some places the people are trying to overcome the cogon with the poor Chinese plows and the buffalo, but it is a slow way, and most of them prefer to move on to the forests again. By this means the central islands, which are the most thickly peopled, have become for the most part covered with grass, while the more sparsely settled islands of the west and south remain in forest.

[TO BE CONCLUDED.]

RECENT BOOKS AND PAMPHLETS.

Garman, S.—Proc. U. S. Nat. Mus.: The Generic Name of the Pastinacas or Sting-Rays. 1885. P. 221.—Notes and Descriptions taken from Selachians in the United States National Museum. Idem, p. 39.—Abnormal Embryos of Trout and Salmon. Ext. "Science Observer," Vol. V., No. 1. All from the author.

Chapman, H. C.—Notes on the Anatomy of the Indian Elephant. Rep. Jour. Comp. Med. and Sur., April, 1887. From the author.

Fischer, J. G.—Beschreibung neuer oder wenig bekannter Reptilien. Verhand d. Natur. Ver. v. Hamburg und Altona.

Hoy, P. R.—How and By Whom Were the Copper Implements Made? Who Built the Mounds? Racine, Wis., 1886. From the author.

Cornet, J.—Note sur le prétendu Pro-atlas des mammifères et de *Hatteria punctata.* Ext. Bull. Acad. Roy. de Belgique, 1888. From the author.

Lameere, A.—Table générale des Annales de la Société entomologique de Belgique. Brussels, 1887. From the author.

Klement, A., *et* *Renard, A.*—Réactions microchimiques a cristaux et leur application a l'analyse qualitative. Annales de la Soc. Belge de Micros., 1887. From the authors.

Cook, G. H.—Annual Report of the State Geologist of New Jersey for the year 1887. From the author.

Winchell, A.—Speculative Consequences of Evolution. Univ. of Mich. Philos. Papers, Second Ser., No. 2. From the author.

Allen, H.—The Distribution of the Color-marks of Mammalia. Ext. Proc. Ac. Nat. Sci., Phil., Feb. 28, 1888.—Materials for a Memoir on Animal-Locomotion. 1888. Both from the author.